



DEHYDRATION OF THE ELDERLY IN NURSING HOMES -FROM A CARE-GIVER PERSPECTIVE

A LITERATURE REVIEW

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<p>Abstract: Maintaining adequate hydration among nursing home residents is a continuous challenge. The elderly easily get dehydrated despite the constant and regular care offered to them in nursing homes. This is due to the ageing process like diminished functional ability and physiological factors such as poor thirst sensation. Emphasis must be placed more on the prevention of dehydration than its treatment. Amongst residents receiving terminal care dehydration is a common problem hence caregivers should pay special attention to it in care plan.</p> <p>Aim: The aim of this study is to find out how dehydration affects the wellbeing of the elderly and the remedy. Hence the research questions are to find out the risk factors of dehydration and how it can be prevented. Method: The method used is systematic literature review and data collected was analyzed using qualitative content analysis. The search engines used were EBSCO and Google Scholar. Results: The results were grouped into categories and sub-categories with their respective themes. It was found out risk factors of dehydration range from physiological factors such as reduced total body water, functional factors such as reduced mobility and environmental factors such as isolation. Dehydration can be prevented by ensuring that the elderly drink adequately and this can be done by using strategies like drinking in little portions with a mixture of variety of fluids. Conclusion: In conclusion dehydration can be avoided if the care-givers are well trained to be able to identify when the clients are at risk of dehydration.</p>	
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<p>Tiivistelmä:</p> <p>Hoitokotien asukkaiden riittävän nesteytyksen ylläpitäminen on jatkuva haaste. Ikääntyneiden ihmisten elimistö saattaa helposti kuivua huolimatta jatkuvasta ja säännöllisestä hoidosta, jota he saavat hoitokodeissa. Tämä johtuu ikääntymiseen liittyvistä tekijöistä kuten heikentyneestä toimintakyvystä sekä fysiologisista tekijöistä kuten heikentyneestä janon tunteesta. Tällöin on ennemminkin korostettava kuivumisen ehkäisemistä kuin sen hoitamista. Saattohoitopotilailla elimistön kuivuminen on yleinen ongelma, joten hoitajien tulisi kiinnittää siihen erityistä huomiota hoitosuunnitelmassa.</p> <p>Tavoite: Tämän tutkimuksen tavoitteena on selvittää, kuinka elimistön kuivuminen vaikuttaa ikääntyneiden ihmisten hyvinvointiin ja hoitoon. Siten tutkimusongelmat ovat seuraavat: mitkä ovat elimistön kuivumiselle altistavat riskitekijät ja kuinka niitä voidaan ehkäistä.</p> <p>Tutkimusmenetelmä: Tutkimusmenetelmänä on käytetty systemaattista kirjallisuuskatsausta ja kerätyt tiedot on analysoitu käyttämällä kvalitatiivista sisällönanalyysiä. Tutkimuksessa on käytetty seuraavia hakukoneita: EBSCO ja Google Scholar.</p> <p>Tulokset: Tutkimuksen tulokset ryhmiteltiin kategorioihin ja alakategorioihin teemoittain. Tutkimuksessa havaittiin, että kuivumisen riskitekijät vaihtelivat fysiologisista tekijöistä, kuten ruumiin vesipitoisuus, toiminnallisiin tekijöihin, kuten heikentyneeseen liikuntakykyyn, ja ympäristötekijöihin, kuten yksinäisyys. Kaikkia näitä tekijöitä voidaan ehkäistä varmistamalla, että ikääntyneet ihmiset juovat riittävästi, ja tähän päästään esimerkiksi tarjoamalla heille juotavaksi erilaisia nestesekoituksia pienissä erissä.</p> <p>Johtopäätös: Tutkimuksen johtopäätöksenä on, että elimistön kuivuminen voidaan välttää, mikäli hoitajat ovat hyvin koulutettuja huomaamaan</p>	
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FOREWORD

I begin by dedicating my thesis to the Almighty father who has been my guardian from the day I was admitted into Arcada. I will forever remain grateful to God for giving me this wonderful opportunity to belong to this field which has affected my life positively in many ways. His Grace, support and eternal love for me gave me the strength to go through my final research work.

Special dedication to my only son Oben Joy Arrah Jr. whose coming to this world has shaped my life and made me to realize the great potentials I have in me. I thank my family for their encouragement and love. My sincere gratitude to some special friends who have been there for me all this time.

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1 INTRODUCTION

Dehydration is one of the health problems that affect the elderly due to the ageing process. With the increase in life expectancy health issues in the elderly have gradually shifted from infectious diseases to non-communicable problems such as dehydration (Fraser 2005) which affect the quality of life of the ageing population. Keeping the body hydrated may seem to be a simple practice but very delicate. The elderly are at risk due to the physical and physiological changes that occur in their body as a result of ageing. Deficiency in fluids in the body can be fatal as it affects the body metabolism. Caregivers must be vigilant to any signs of dehydration in their clients. Often these signs are ignored and considered as process of ageing. Fluid needs for the elderly is higher than that of younger people. 45 to 75% of the body is made up mainly of water (Begum & Johnon 2010). When the body ages there is loss in muscular mass which causes the loss of total body water. This fluid imbalance brings about increased water requirements in the elderly.

Elderly people in nursing homes are dependent on caregivers for assistance in their daily activities. Without help and guidance from caregivers they cannot cope due to lack of ability to manage on their own. Some have memory losses, fatigue, mobility problems, visual problems and poor thirst. All these affect their ability to be consistent with fluid intake. Poor thirst is dangerous as it hinders an elderly from drinking. Poor mobility brings about inability to reach out for water. The fear of incontinence in urinating will cause an elderly with little or no memory loss to drink less and this is also related to poor mobility if the toilet is not accessible.

The caregivers should apply strategies to encourage fluid intake in their clients. The elderly together with their family have to be informed on the importance of water in their body. Wide variety of beverages should be encouraged to boost the desire to drink and fluids should be given as often as possible in small amounts rather than large amounts. All these should be monitored by caregivers and recorded in severe cases. Those at higher risk should be monitored more. Client's medical record should be assessed for any changes in medication or health condition which can cause dehydration.

1.1 Motivation for choice of research

The author's interest in dehydration came as a result of observation in fluid intake routines in elderly living in nursing homes. The author was curious about the reason for the constant round-the-clock provision of water and juice to the elderly. During several work practices the author noticed there were always cups of water or juice on the bedside tables of clients and these were replaced or added at every time. During summer caregivers were always told to give water to clients regularly to prevent dehydration. But the author observed this practice was not efficient. So the author was interested to find out what dehydration is all about and the outcome of insufficient fluid intake.

1.2 Aim and research question

The aim of this study is to find out how dehydration affects the wellbeing of elderly in nursing homes and the remedy. This includes signs and symptoms, risk factors and its consequences. Hence the research questions go thus:

1. What are the risk factors of dehydration in nursing homes?
2. How can dehydration be prevented in nursing homes?

1.3 Previous research

In this study the author did a research of previous studies related to dehydration in the elderly. This was done to get a general knowledge of dehydration in the elderly and to find out the common points of interest in previous studies. All the previous studies examine the risk factors and prevention of dehydration in the elderly. They all emphasize on the importance of prevention of dehydration than treatment.

Wotton K. et al (2008) carried out a study on *Prevalence, risk factors and strategies to prevent dehydration in older adults*. In addition to risk factors and prevention of dehydration, they analyzed the assessment of dehydration and suggested that multiple signs and symptoms of dehydration in the elderly should be used as a strategy to make assessment more reliable.

In their study on *Avoiding Dehydration* Ford D. and Roberts B. (1995) used a practical approach of assessment of dehydration by showing step by step follow up of an elderly client at risk of dehydration, the subsequent signs and symptoms and the remedy of the situation. By using this practical approach they discussed the risk factors of dehydration like the ageing process and prevention by education of care-givers on how to be able to identify the signs and symptoms of dehydration and sufficient fluid intake provision to the elderly.

A study on *Prevention and Managing dehydration* by Suhayda R. & Walton J. (2002) also highlights risk factors of dehydration like age-related changes and prevention of dehydration through sufficient provision of fluids to the elderly and providing information about dehydration to the elderly and also their family members. They also pointed out that care-givers should be able to identify the clients at risk of dehydration.

Bryant H. (2007) carried out a study on *Dehydration in older people: Assessment and Management* whereby he states that hydration is as important in the healthcare certain as medication and any other forms of treatments. He also discussed how the physiology of the ageing body put the elderly at risk of dehydration and how strategies like giving out information about dehydration can help prevent it from occurring.

Another study *Dehydration is a common yet preventable problem in the NH setting* by Kavanaugh et al (2006) points out that nursing home residents are particularly at risk of dehydration due to physical disabilities and cognitive problems which require efficient follow up of fluid intake.

1.4 Definition of dehydration

Dehydration comes from the Greek words *hydor* which means water and *de* which means removal, deprivation or separation. It is the loss of water or fluids from the body more than it is gained. About 75% of the body is water which can be found in cells and blood vessels. This shows that the body depends on water for metabolism. There are three types of dehydration depending on how much water is lost from the body (Bryant 2007).

Isotonic dehydration

This kind of dehydration is the most common type whereby there is equal loss of water and salt. This can lead to shock and can occur as a result of vomiting or diarrhea.

Hypertonic dehydration

This is the second most common and occurs when there is more loss of water than salt from the body. This can easily happen when there is high fever or watery diarrhea.

Hypotonic dehydration

This is the least common and occurs when there is more loss of salt than water from the body. It can be caused by poor nutrition, burns, renal diseases and over use of diuretics.

2 BACKGROUND

Dehydration in the elderly is an important health factor which is related to several malfunctions in the ageing body. This can be seen from poor thirst or dysphagia to poor renal function. In order for a caregiver to be efficient in preventing dehydration in the elderly enough knowledge of the signs, symptoms, diagnosis or assessments of dehydration should be fully known.

2.1 Signs and symptoms of dehydration

Early indicators of dehydration are a mixture of various signs and symptoms such as poor skin turgor such that when skin is gently pulled it does not return to its original place (Ford 1995) but rather it stays in the same raised state when released, dry mouth (lips, tongue, thick saliva), Oliguria (decreased urine output), concentrated urine, constipation, weakness or dizziness, confusion (Chalmers 1980) frequent urinary tract infections, irritability, agitation, change in mental status, acute weight loss (Ford 1995) within a short period of time, fever, loss of appetite, mucosal dryness, elevated body temperature, and heat intolerance (Lewis 2002). More advanced signs of dehydration should not go un-noticed as it has severe consequences that can endanger the life of an elderly. They include more disturbing conditions such as sunken eye balls, difficulty in swallowing due to over dryness of the throat, numb skin, painful urination, stiffness in movement, shriveled skin and muscle spasms.

2.2 Causes of dehydration

The major causes of dehydration in the elderly are related to the ageing process. Ageing affects functional and cognitive abilities in the elderly. The urinary system in the elderly undergoes so many changes that affect dehydration. The internal organs of the body are also affected leading to poor functioning of the system as a whole coupled with morbidity and medication.

Diseases

Diseases like Parkinson's disease and stroke affects swallowing also known as Dysphagia affecting fluid intake causing dehydration. Kidney failure, heart failure and poorly controlled diabetes disrupt the body's ability to maintain normal fluid level in the body. Diarrhea, vomiting and fever (Lewis 2002) also lead to dehydration. Blood loss from surgery such as hip or knee replacement will lead to loss of fluids from the body. Other factors are diuretics and side effects of medications.

Social factors

Social aspects such as heat exhaustion or overexposure to sunlight cause loss of water from the skin surface (Lewis 2002). Some elderly deliberately restrict themselves from sufficient water intake due to fear of incontinence (Ford 1995). Other less physically active elderly with mobility and cognitive problems don't have the ability to get water or simply don't remember. In institutionalized settings they get help from the caregivers without which they can become dehydrated. Some active residents may get dehydrated if they are ignored and not followed. Their over activity can also cause them to be dehydrated if they do not consume sufficient fluids to regulate the body fluid.

2.3 Assessment of Dehydration

In health care institutions assessment of dehydration on clients should be carried out on admission of the client. This is necessary for efficient monitoring of hydration status of clients. Table 1 below suggested by SCDDSN 2006 illustrates the assessment tools for dehydration in the elderly.

Table 1 Assessment of dehydration

1-Basic physiological measures	Vital signs (temperature, pulse, respirations and blood pressure).
	Weight (document scale used and clothing individual wears).
	Height
	Mucous membrane and skin turgor assessment.
	Body mass index (BMI) calculated as weight in kg divided by height in meters.
	Determination of level of consciousness
2-Hydration status	Urine specific gravity
	Urine color
	Usual pattern of fluid intake
	Intake behaviors (e. g signs of thirst)
	Special considerations (e. g NPO, tube feeding)
3-Medical history	Diagnosis
	Current medical condition
	History of dehydration or over-hydration
4-Current medication	

Table 14 above shows assessment of dehydration in an institution when a client is first admitted. It serves as a guide to care-givers on what to do with a new client to test hydration status for future monitoring.

On admission vital signs (temperature, pulse, respirations and blood pressure) are taken to check the client's health condition. A rise in temperature above the norm could be a sign of dehydration. Weight should be taken with consideration of the clothes the client is wearing to make the results more accurate, height, body mass index (BMI) calculated as weight in kg divided by height in meters, and determination of level of consciousness. The mucous membrane is checked and skin turgor to determine the skin condition. Skin is pulled up and released to see if it returns to its original position. If it doesn't then it could be a sign of dehydration.

Hydration status can be checked by urine specific gravity which is a laboratory test to determine the concentration of all chemical particles in the urine. By doing this the urine color is also observed. If it is concentrated then it may be a sign of dehydration meaning the client has insufficient fluid intake. Hence findings can be made about the client's fluid intake behavior and pattern of fluid consumption. Special consideration should be taken for NPO (nil per os or nothing by mouth) and tube feeding clients as they are dependent and their fluid intake is calculated and administered by the caregivers.

The client's current medical condition should be checked for any diseases that can easily put the elderly at risk of dehydration such as morbidities (kidney failure, heart failure and diabetes), diarrhea, vomiting, fever, neurological disorders (Parkinson's disease and recurrent strokes), hip fractures and knee replacement surgery. The client's dehydration history can be checked also.

Lastly the current medication of the client should be checked for medications which put the elderly at risk of dehydration such as laxatives, sedatives, diuretics and side effects of medications.

2.4 Malnutrition and dehydration

Malnutrition is related to dehydration. When an elderly is malnourished there is risk of dehydration. Foods like fruits, vegetables and soups have percentage of water as high as 90 percent. Taking fluids alone without eating properly can affect the body's mechanism. Hence proper diet should accompany fluid intake for optimum body functioning.

3 THEORETICAL FRAMEWORK: THEORY OF CARING

In this section, the theory of caring by Kristen M. Swanson has been selected to reflect the processes of caring in nursing homes by caregivers. In order to be able to know the risk factors of dehydration and how it can be prevented, caregivers must be well trained or educated to have the skills in nursing and apply these skillful practices to promote health for the wellbeing of their clients as illustrated by Kristen M. Swanson.

3.1 Background of the theorist

Kristen M. Swanson, R.N., Ph.D., F.A.A.N., was born on January 13, 1953 in Providence, Rhode Island. In 1975, she graduated from the University of Rhode Island College of nursing. She proceeded as a registered nurse in the university of Massachusetts Medical Center in Worcester. Her goal was to get more skills and teach others how to be skillful practitioners. So in 1978 she received a Master's degree in Adult health and illness nursing program in university of Pennsylvania in Philadelphia. She worked for a year as clinical instructor and eventually enrolled in a Ph.D. nursing program at the University of Colorado in Denver. She specialized in psychosocial nursing with emphasis on concepts of loss, stress, coping, interpersonal relationships, person and personhood, environments, and caring.

During her health promotional activities, she realized that participants were more interested in their personal experiences than the pathophysiology. Hence she decided to focus on caring as part of her doctoral research program. She earned a Ph.D. in nursing science and after a series of researches carried out in various academical institutions Swanson became a professor with teaching and administrative responsibilities. Therefore she reached her goal to educate others as skillful practitioners.

3.2 Theoretical sources

Swanson developed the theory of caring through her clinical experience, theoretical sources and knowledge from books whereby she realized the positive impacts of caring interventions on people's lives. She also received guidance from other doctors like Dr. Kathryn E. Bernard and she acknowledged Dr. Jacqueline Fawcett's course on the conceptual basis of nursing made her realize caring for others as they go through life changes of health, illness, healing, and dying was in line with her personal values.

In the theory of caring, Swanson proposed the caring model as one of her models in which she suggested the basic processes which are knowing, being with, doing for, enabling, and maintaining belief. Swanson defines all these processes as seen below.

3.3 Major concepts and definitions

Caring

Caring is a nurturing way of relating to a valued other toward whom one feels a personal sense of commitment and responsibility (Swanson, 1991).

Knowing

Knowing is striving to understand the meaning of an event in the life of the other, avoiding assumptions, focusing on the person cared for, seeking cues, assessing meticulously, and engaging both the one caring and the one cared for in the process of knowing (Swanson, 1991). The process of knowing involves the caregiver and the patient or client but the experience of the situation by the person in need of care is starting point of understanding.

Being with

Being with means being emotionally present with the other. It includes being there in person, conveying availability, and sharing feelings without burdening the one cared for (Swanson, 1991). The feelings shared could be joy or sorrow and being present can lead to better understanding of the other person's situation and emotions.

Doing for

Doing for means to do for others what one would do for self if at all possible, including anticipating needs, comforting, performing skillfully and competently, and protecting the one cared for while preserving his or her dignity (Swanson, 1991). All these therapeutic acts of doing for are helpful and soothing for the client.

Enabling

Enabling is facilitating the other's passage through life transitions and unfamiliar events by focusing on the event, informing, explaining, supporting, validating feelings, generating alternatives, thinking things through, and giving feedback (Swanson, 1991).

Maintaining belief

Maintaining belief is sustaining faith in the other's capacity to get through an event or transition and face a future with meaning, believing in other's capacity and holding him or her in high esteem, maintaining a hope-filled attitude, offering realistic optimism, helping to find meaning, and standing by the one cared for no matter what the situation (Swanson, 1991). Swanson suggests the caregivers should generate confidence in the clients during the process of caring.

3.4 Major assumption

In 1993, Swanson went ahead to develop her theory of caring by explaining her major assumptions about the four main phenomena of concern to the nursing discipline, which include nursing, person/client, health and environment.

Nursing

Swanson (1991, 1993) defines nursing as informed caring for the wellbeing of others. She states that the nursing discipline is informed by experimental knowledge from nursing and other related disciplines.

Person

Swanson (1993) defines person as “unique beings who are in the midst of becoming and whose wholeness is made manifest in thoughts, feelings, and behaviors” . She postulates that the life experiences of humans are influenced by a complex interplay of “a genetic heritage, spiritual endowment and the capacity to exercise free will” (Swanson, 1993). This implies people’s attitudes are shaped by the environments they live in. Swanson thinks persons love to be connected to others and spiritual beings such as an eternal and universal source of life which may be Holy spirit or higher power or grace. She believes persons also have the free will and ability to make choices or decisions when faced with various possibilities.

However Swanson (1993) also claims that person’s ability to exercise free will can be affected by race, religion, gender, class or access to care. Therefore nurses must consider individuality and consider various possibilities that are acceptable and desirable to the people they serve and also their families. This enables the nurses to understand the society and take on leadership roles in the fight for human rights, equal access to health care, and other humanitarian causes.

Health

According to Swanson (1993), to experience health and well-being is: “...to live the subjective, meaning filled experience of wholeness. Wholeness involves a sense of integration and becoming wherein all facets of being are free to be expressed. The facets of being include the many selves that make us a human: our spirituality, thoughts, feelings, intelligence, creativity, relatedness, femininity, masculinity, and sexuality, to name just a few”.

This implies Swanson views regenerating wellbeing as a convoluted process of curing and healing that includes “releasing inner pain, establishing new meanings, restoring integration, and emerging into a state of renewed wholeness” (Swanson, 1993).

Environment

Swanson (1993) defines environment on basis of different situations and from a nursing point of view. She states that it is “any context that influences or is influenced by the designated client”. She indicates that the environment has many influences such as cultural, social, biophysical, political, and economic.

3.5 Theoretical assertions

Swanson’s theory of caring examines what it means for nurses to practice in a caring way. It highlights promoting of wellbeing of others as the goal in nursing. Swanson (1991) states that caring are “a nurturing way of relating to a valued other towards whom one feels a personal sense of commitment and responsibility”.

Swanson (1993) forms a structure of overlapping care process which she uses to explain the pattern of caring in nursing which involves maintaining belief, knowing, being with, doing for and enabling which leads to an intended outcome which is for instance the client wellbeing.

This means in caring it starts with the basic belief in humans followed by knowing the client which is achieved by being with the client constantly, emotionally and physically which is by doing for or catering and enabling the client leading to the intended outcomes which are the consequences.

3.6 Relevance of Swanson's theory of caring

Swanson's theory has been widely accepted in the nursing community. The idea that caring is the main goal in nursing practice came from the theorist's emphasis on the importance of caring in nursing practice. Various organizations in U.S.A., Canada and Sweden accept Swanson's theory of caring as framework for professional nursing practice. Examples are Dalhousie University School of Nursing in Halifax, Nova Scotia, and nurses at IWK (Izaak Walton Killiam) Health Center.

The caring theory is clearly applicable in elderly care nursing practice. In a nursing home the caregiver relates to the client through the process of believing in the service to be executed, knowing how to provide the service, being with or working together with the client to provide the service, caring or doing the service for the client thereby enabling the client react to the service provided which is the outcome of the whole process of caring for the client.

3.7 Education

The process of caring in nursing practice cannot be well applicable if not properly understood. Nursing is a wide range of caring from simple situations like feeding an elderly to complex situations like monitoring the recovery of a patient who has suffered from a stroke. Hence education is vital to enable nurses know that caring is the goal in nursing practice in the promotion, restoration or maintenance of optimal wellbeing of individuals.

3.8 Further research

Swanson signifies that she is more interested in applying her theory in nursing practice than developing it. Her theory can be applied in other caring settings such as social work, teaching, medicine or other situations in life beyond nursing. Hence there is potential room for this theory to be further developed in various contexts.

4 RESEARCH METHODOLOGY

The methodology of this research is systematic literature review whereby data collected from earlier scientific research have been analyzed to find out how dehydration affects the wellbeing of elderly in nursing homes and the remedy. This has been done through deductive content analysis whereby the material which has been gathered reflects the aim of the study and also serves as answers to the research questions. Other related material were analyzed and added to the study in order to get a clearer and general understanding of dehydration in the elderly.

4.1 Literature review

Jaidka et al (2013) define literature review as a summary of a set of related research papers which selects information from the papers, and organizes and integrates it into logical justification for the author's research.

Jaidka et al state two types of literature reviews: integrative and descriptive literature reviews. Descriptive literature review brings out the summary of each study with the methodology and results while integrative literature review presents the ideas and results from the studies as a critical summary in relation to what the author thinks about the study.

Hart (1998) brings out a list of functions of literature review:

- i. To distinguish the current study and the future research of a given study.
- ii. To bring out important elements related to the topic.
- iii. To achieve a new perspective by building up ideas and results from earlier studies.
- iv. To rationalize the significance of the problem.
- v. To identify the research methods used.

4.2 Data collection

The material in this study was gathered mainly from scientific research articles and books. Some of the articles could be assessed only from Arcada library. Research articles were accessible through the NELLI portal in Arcada library through which Ebsco was selected due to its academic relevance and convenience to the author. Google scholar and books from Arcada Library were the other search engines for material.

The materials selected were chosen from the social service field and were all in relevance to the topic and research questions. Other related materials were obtained for better understanding of the topic.

4.2.1 Data base search

The literature search was done from Google Scholar and Arcada library online through the NELLI portal. In the Nelli Portal articles were obtained under Social Service Degree Program. The data base selected was the Academic Search Elite (EBSCO). The key words used in the data base were dehydration, institutionalized and elderly. In Google scholar the key words came from the research topic: Dehydration in Institutionalized Elderly. The articles selected were from the year 2001 to 2013. Some articles showed up in both Google Scholar and Nelli Portal. Below is table 2 showing the number of researched articles, which were found, and the number selected.

Table 2 Data base search

Data base	Key words	Total no. of hits	Year range	Articles selected
Google Scholar	Dehydration in institutionalized elderly	7,090	2001-2009	4
EBSCO	Dehydration and elderly.	1,950	2001-2011	4

4.2.2 Inclusion and exclusion criteria

The articles selected were articles with relevance to the topic. Special emphasis was laid on articles with more practical approach to how the caregiver can help a client to prevent dehydration. This means articles with medical approach and detail measurements of fluid intake were neglected. All the articles were scientific articles written between the years 2000 and 2012. Table 3 below shows the criteria used in choosing the articles for this research work.

Table 3 Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> -Articles written between years 2000-2012 -Articles with relevance to the topic -Articles written in English -Articles that were free to access -Articles with practical approach 	<ul style="list-style-type: none"> -Articles written more than 12 years ago -Articles not directly related to the topic -Articles in languages other than English -Paid articles or articles not accessible -Articles with medical approach

4.3 Content analysis

Qualitative content analysis was the method used in analyzing data in this thesis. According to Hsieh & Shannon (2005) in Zhang & Wildemuth (2009), qualitative content analysis is a research method used in interpreting the content of a text data subjectively such that they are classified through a coding process and identifying themes. Qualitative analysis is usually carried out from previous researches with relevance to the topic of the author. The factors in common are grouped and coded under various themes or categories in order to obtain the results of the study or as answers to the research questions. All these are done after thorough review of all the articles which have been studied by the author and are tabulated to give a clearer picture of the result. Hence this method has been used to bring out the risk factors of dehydration in institutionalized elderly and how it can be prevented.

4.4 Validity and reliability

According to Merriam S. (1995), validity and reliability in researches are very important in applied fields such as social work and such researches often aim at improving practice. This implies the results obtained from the researches are used to apply in the field. Hence the trustworthiness of researches will continue to be challenged to ensure that what has to be applied will not affect the lives of people in a negative way. Results should be widely acceptable and applicable.

In this study the theoretical framework has been used to support and reflect the importance of care in nursing. Thus further emphasizing the role caregivers have to play in identifying when clients are at risk of getting dehydrated and the necessary measures that should be taken to prevent it from occurring. Also the research questions are in line with the aim of the research, which is to find out the remedy of dehydration.

4.5 Ethical consideration

Ethics is all about the life style of people and how they interact in the society. In the nursing field ethics is an important and sensitive issue. If not properly followed it can lead to human right abuse and can affect the wellbeing of others. Researchers in the health and social field must take ethics into consideration when carrying out researches because the health and social field has to do with humans and the society. The society is complex and consists of people from different cultures, different life styles and different ways of interaction. According to Harrowing et al before carrying out any research in the health field, the cultural and social values of the area to be exploited must be considered in order to limit the research within the ethical framework.

The author has followed the Arcada's guidelines of scientific research. Ethical consideration was done by forwarding the research plan to the school administration for approval before presenting the plan to the administration of the institution which was chosen to do research on ways identify the risk factors of dehydration and how to prevent it. The thesis work began after the institution commissioned the plan.

The author has carried out the research with awareness that the results will also help improve on the caring approach of the caregivers in this institution towards improving on the fluid intake of the residents and prevention of dehydration. Hence the results of this thesis will be handed to the administration as recommendation for better services to the residents.

5 PRESENTATION OF THE SELECTED ARTICLES

In this section the author display the articles which were selected for use in this research. The main articles with contents in line with the aim of the work can be found on table 4 below.

Table 4 Presentation of selected articles

Author/Year	Title	Aim	Method	Results
Begum & Johnson (2010, p.47-53)	A review of the literature on dehydration in the institutionalized elderly.	To summarize the literature on dehydration in the institutionalized elderly	Literature review	<p>Risk factors related to the ageing process such as impaired thirst perception, dysphagia or trouble to swallow, reduced ability to dilute urine and excrete excess water, nephron loss and reduction in total body water.</p> <p>Risk factors related to daily activities such as incontinence, infrequent urination, and mobility disorders.</p> <p>Risk factors related to the environment such as such as heat exhaustion and overexposure to sunlight.</p> <p>Risk factors related to diseases such as morbidities (kidney failure, heart failure, and diabetes), diarrhea, fever, Parkinson's disease, recurrent strokes, hip fractures and knee replacement surgery.</p> <p>Risk factors related to medication such as site effects of medications, laxatives, sedatives and diuretics.</p> <p>Remedy is to encourage the elderly to drink more water, variety of beverages such as fruit juice,</p>

				<p>herbal tea, milk and soup, food such as fruits, vegetables, milk products such as cheese and yoghurt.</p> <p>Subcutaneous rehydration for persons receiving palliative care.</p> <p>Caregivers should notice signs of dehydration early enough to cure it before it becomes severe and should have sufficient time to monitor fluid intake in their clients.</p> <p>Fluid management should be properly followed to prevent and treat associated diseases such as constipation, formation of kidney stones, UTIs, pneumonia, and pressure ulcers.</p> <p>Special attention to those on laxatives, sedatives and diuretics. Such medications should be given only when necessary especially in the summer.</p> <p>For those with swallowing problems flavored gelatin can be used.</p> <p>Overall caregivers should be properly trained. Clients and their family members should be educated on the importance of fluid intake in the elderly.</p>
Ferry M. (2005)	Strategies for ensuring good hydration in the elderly	How to ensure good hydration in the elderly	Descriptive qualitative design	<p>Risk factors such as lack of attention from caregivers.</p> <p>Age-related risk factors such as visual problems, cognitive problems, swallowing problems, thirst reduction, age of 85yrs and above, loss in bone mass and muscular mass leading to loss in total body water.</p>

				<p>Factors related to medications like laxatives, sedatives and diuretics that put the elderly at risk of dehydration.</p> <p>Health conditions such as fever, vomiting and diarrhea that can dehydrate the body.</p> <p>Functional factors such as poor accessibility to water, cognitive disorders and confusion</p> <p>Remedy includes informing the elderly about the importance of drinking enough water even when they are not thirsty because due to the decrease thirst sensation, practical approaches like adapting the environment for easy accessibility to the toilet to avoid deliberate poor drinking habit for fear of incontinence.</p> <p>Encouraging other food rich in water such as fresh vegetables, fruits, fresh cheese, and yoghurt, beverages such as tea, fruit juices, milk and soup, advising the elderly to drink often in smaller portions than drinking large amount in one time.</p> <p>Educational programs and information should be made available for caregivers and health care professionals.</p> <p>Caregivers should be able to identify the elderly persons at risk, assess chronic medication for possible dehydrating effect and identify conditions such as anorexia.</p> <p>For elderly persons with dysphagia or swallowing problems flavored gelatin can be used.</p>
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Fraser C. (2009)	Monitoring hydration status in our clients	How to monitor hydration status in the elderly	Descriptive qualitative design	<p>Risk factors such as dysphagia observed mostly in thin fluids, refusal of fluids at meal or snack times (also related to dysphagia), the need for assistance when eating or drinking, decline in thirst sensation, difficulties to communicate fluid needs and other needs, memory losses, illnesses that provoke fluid lost from the body like fever, diarrhea, and vomiting, situations when fluid losses are greater than fluid intake, medications such as diuretics, laxatives or enemas, incontinence and nocturia.</p> <p>The remedy is to encourage the elderly to drink at least 1,500ml of water per day.</p> <p>Food such as pudding, yoghurt, canned fruits, soup and desserts are fluid requirements for the body.</p> <p>Thickened fluid plan can be set up for clients who cannot take thin fluids.</p>
Stewart L et al (2009)	Combating dehydration and UTs in Long-Term Care	To keep residents hydrated and reduce UTI s.	Descriptive qualitative design	<p>Risk factors such as decrease in lean body mass leading to decrease in total body water, poor thirst, cognitive problems, neurological impairments such as stroke, poor functioning of the kidneys, illnesses that provoke dehydration such as fever, vomiting and diarrhea, disphagia, incontinence leading to deliberate less intake of water increasing the chances of infections such as UTIs.</p> <p>When water alone is not enough, electrolytes such as GeriAide lemon supplement dissolved in water can be used. Electrolytes facilitate the flow of water mole-</p>

				<p>cules across the cell membrane in the body.</p> <p>Common caffeinated beverages like coffee or tea do not favor hydration.</p>
Garcia M.(2001)	Dehydration of the elderly in nursing homes	To examine dehydration in nursing homes	Descriptive design	<p>Risk factors such as poor site, poor hearing, functional disabilities, dementia, depression, aphasia, poor thirst and appetite, certain medications such as sedatives and tranquilizers, and immobility.</p> <p>Remedy is that care-givers should assist the elderly in feeding and drinking. There has to be sufficient and well-trained staff for more quality care of the elderly in order to avoid feeding the clients in rush, feeding in poor sitting positions in bed, and insufficient provision of fluids. Clients must drink at least 1.500ML/day</p>
Scales K. (2011)	Use of hypodermoclysis to manage dehydration	To focus on subcutaneous fluid replacement for the management of dehydration in older adults	Descriptive qualitative and quantitative design	<p>Physiological risk factors such as reduced thirst sensation and appetite, five or more co morbidities, weight loss, decrease in total body water, the female sex and age above 85.</p> <p>Functional risk factors such as nocturia, incontinence, somnolence, self-neglect, poor mobility, communication problem, reduced oral intake of the average water requirement of the body (1,500ml/day), and reduced manual dexterity.</p> <p>Environmental risk factors such as isolation or loneliness, hot weather, poorly trained caregivers, understaffing, and hospitalization.</p> <p>Disease-related risk factors such as five or more co morbidities, Alzheimer's disease, fluid loss conditions like fever, vomiting,</p>

				<p>diarrhea, wounds and polyuria, and reduced fluid intake conditions such as anorexia, dysphagia, dementia, confusion and depression.</p> <p>Remedy includes regular urging by caregivers to drink water, making fluids accessible, assisting the clients when needs arise, use of fluid balance charts and recording fluid intake, educating caregivers, clients and their family members about fluid intake.</p> <p>In severe cases of dehydration measures such as hypodermoclysis whereby supplementary fluids may be given through enteral, IV or subcutaneous routes.</p>
Davidhizar R. et al (2004)	A review of the literature on how important water is to the world's elderly population	Reviews the literature on how important water is to the world's elderly population	Descriptive qualitative design	<p>Risk factors include loss of appetite, decreased thirst sensation, loss of independence, exposure to high temperature, consumption of caffeine and alcohol, exercises, illnesses like diarrhea or vomiting.</p> <p>Remedy is to encourage intake of water throughout the day, fruit and vegetable juice, caffeine-free beverages like herbal tea and decaffeinated coffee.</p> <p>Water should be placed where accessible, for example in the kitchen and even bathroom sinks. The elderly can drink water when brushing their teeth. Modified cups should be provided for easy handling for clients with arthritis and stroke-related disabilities (Simmons et al.2001).</p> <p>There should be sufficient number of staff for avoid poor supervision of the needs of the elderly.</p>

				Thickened liquids can be provided to dysphagia stroke patients or in severe cases fluids can be provided by intravenous and enteral routes (Whelan 2001).
Hamilton S. (2001)	Detecting dehydration and malnutrition in the elderly	How to detect hydration and malnutrition	Descriptive qualitative design	<p>Risk factors include decline in thirst sensation, decline in appetite, 10% less body fluid than a younger adult, decline in muscle mass, decline in strength, decline in immune system exposing the body to diseases, coma or paralysis, medications that bring about fluid loss such as diuretics and laxatives, incontinence and depression.</p> <p>Remedy includes encouraging fluid intake, offering liquid supplements between meals and setting up a schedule for offering fluids.</p> <p>Caregivers should know the client's medication and the potential and the potential for side effects.</p> <p>If hydration is suspected, client's care plan should be checked for any changes e.g. medication.</p>

6 RESULTS

The results of this thesis have been analyzed using qualitative content analysis. The findings from each article have been classified into themes, categories and sub-categories. The two themes in this study are the research questions which are risk factors of dehydration and prevention of dehydration which are both divided into categories and sub-categories.

6.1 Risk factors of dehydration in the elderly in nursing homes (Q1)

The risk factors of dehydration are categorized into five categories, which include physiological factors, functional factors, environmental factors, disease-related factors and iatrogenic factors (Scales K. 2011).

Physiological factors

Physiological factors are age related processes that can put the elderly at risk of dehydration. As the body ages several changes occur which affect the ability of the body to maintain normal fluid balance (Scales 2011). This category is further divided into sub-categories which are the changes that occur during ageing. The sub-categories include impaired thirst perception which causes the elderly not to feel the need to drink, dysphagia or trouble to swallow, reduced ability by the kidneys to dilute urine and excrete excess water, nephron loss and reduction in total body water (Begum & Johnson 2010). Other sub-categories include visual problems, cognitive problems, age over 85, loss in bone mass and muscular mass which leads to loss in total body water (Ferry 2005); decline in the immune system exposing the body to diseases, coma and paralysis (Hamilton 2001).

Poor hearing (Garcia 2001), memory loss (Fraser 2009), poor functioning of the kidneys (Stewart et al 2009), 10% less body fluid than a younger adult (Davidhizar et al 2004) and weight loss (Scales 2011) all put the elderly at risk of getting dehydrated.

Functional factors

Functional factors which put the elderly at risk of dehydration include mobility disorders and infrequent urination (Begum & Johnson 2010); reduced manual dexterity, somnolence, nocturia, hospitalization, and understaffing (Scales 2011); refusal of fluids at meal or snack times, need of assistance when eating and drinking, and difficulties to communicate fluid needs (Fraser 2009); lack of attention from caregivers (Ferry 2005) and incontinence leading to deliberate poor intake of fluids (Stewart et al 2009).

Environmental factors

Environmental factors include heat exhaustion and overexposure to sunlight (Begum & Johnson 2010); isolation and loneliness (Scales 2011).

Disease-related factors

Disease-related factors include diseases that cause the elderly to be vulnerable to dehydration. This category is subdivided into morbidities (kidney failure, heart failure and diabetes), diarrhea, vomiting, fever, neurological disorders (Parkinson's disease and recurrent strokes), hip fractures and knee replacement surgery (Begum & Johnson 2010); dementia, depression, and aphasia (Garcia 2001); polyuria, anorexia and Alzheimer's disease (Scales 2011).

Iatrogenic factors

Iatrogenic factors are factors related to certain medications that expose the elderly to dehydration. This category is subdivided into laxatives, sedatives, diuretics and side effects of medications (Begum & Johnson 2010).

6.2 Prevention of dehydration of the elderly in nursing homes (Q2)

This theme is categorized into different measures that can be taken to prevent dehydration of the elderly in nursing homes. The seven categories include water, beverages, food, supplementary fluids (Scales 2011), clinical practice, practical measures and education.

Water

In order to prevent the elderly from getting dehydrated caregivers have to encourage them to drink sufficient water. The elderly should drink even when they are not thirsty because they have a decreased thirst sensation (Ferry 2005). The average water intake daily recommended for the elderly is 1.5ml (Fraser 2009). In situations when water is not enough to keep an elderly sufficiently hydrated, electrolytes such as GeriAide lemon supplement dissolved in water can be offered (Stewart et al 2009). Electrolytes are salts and minerals taken into the body to facilitate the flow of water molecules across the cell membranes in the body hence they are important for good metabolism in the body.

Beverages

Variety of beverages such as fruit juice, milk and soup should be offered to the elderly (Begum & Johnson 2010) alongside water as they also function in keeping the body hydrated. Caffeine free beverages like herbal tea and decaffeinated coffee (Scales 2011) should be encouraged and caffeinated drinks like coffee, tea and cola should be taken moderately (Fraser 2009).

Food

Foods with high water content such as vegetables, fruits, and milk products like cheese and yoghurt (Begum & Johnson). Pudding and desserts are also rich in water content (Fraser 2009).

Fraser 2009 has set up a table to display the fluid provision of certain common food shown in table 5 below.

Table 5 The approximate fluid provision from common foods

Food	Serving size	Approx. fluid provided
Jelly dessert/gelatin	125mL (½ cup)	120 mL
Pudding	125mL (½ cup)	100 mL
Ice-cream/sherbet	125mL (½ cup)	60 mL
Popsicle	1 popsicle	90 mL
Yoghurt	125mL (½ cup)	90 mL
Canned fruit	125mL (½ cup)	100 mL
Soup	375 mL (1½ cup)	165 mL

Supplementary fluids

Supplementary fluids are offered to the elderly when fluid intake is not sufficient to meet the body's needs. This can be done either through subcutaneous (hypodermoclysis) route whereby fluids are injected under the skin to meet up with body fluid requirements, enteral routes (nasogastric tube feeding) whereby fluids are provided through a tube inserted through the nose via the oesophagus into the stomach or intravenous (Scales 2011) .

Clinical practices

Clinical practices are the various methods caregivers must use in order to monitor the elderly, identify signs and prevent dehydration. As illustrated by Swanson (1991) in her theory of caring, clinical practices follow the pattern of knowing, being with, doing for, enabling, and maintaining belief for effective skillful practice. This begins with knowing the client's strengths and weaknesses if there are any risks of dehydration, examining the client and knowing their medical history which guides the caregiver on what services to offer to the client like what amount of fluid intake is required and how to offer the services like for example oral fluid intake or enteral fluid intake. Being with goes beyond knowing as it establishes a closer relationship between the caregiver and client during which the caregiver gets a better understanding of the client by being emotionally present and sharing feelings such as joy or sorrow which can help the client to also cooperate in fluid intake. Doing for are the acts of being helpful, protective or providing comfort and assistance to ensure that the client doesn't get dehydrated. Enabling is letting the client go through the caring process by growing or healing and this involves support, information, explanations and feedbacks about the client's progress about fluid intake. These can be done while maintaining belief to enable the client face a future with meaning by generating confidence and hope in the client. Through this basic process of caring, caregivers should notice signs early enough before they get severe. Fluid management should be strictly followed especially with use of fluid charts (Scales 2011) where necessary. When all these measures are taken associated diseases such as constipation, formation of kidney stones, UTIs, and pressure ulcers can also be prevented (Scales 2011).

Special attention should be given to those on sedatives, diuretics and laxatives that make them vulnerable to dehydration. Such medications should be given only when necessary especially during the summer. Also chronic medications should be assessed for possibilities of dehydration side effects (Hamilton 2001).

Practical measures

Some common practical measures to help prevent dehydration are adapting the environment for easy access to the toilet to avoid deliberate poor drinking habits due to fear of incontinence (Ferry 2005). Water can be kept in the kitchen table and even bathroom table whereby the elderly can drink even when brushing their teeth (Scales 2011). The elderly can be encouraged to drink in small portions rather than large ones at a time (Ferry 2005). Simmons et al in Davidhizar 2004 state that cups can be modified for easy use by stroke and arthritis patients.

Education

Caregivers should be properly trained and family members informed about the importance of sufficient intake of fluids in the elderly (Begum & Johnson 2010). In Kristen M. Swanson's theory of caring (Swanson 1991) she points out that her goal is to be a skillful health care practitioner and to educate others to be skillful practitioners. She also pointed out that caring cannot be well applicable if not properly understood. This implies education is vital to enable nurses know that caring is the goal in nursing practice in the promotion, restoration or maintenance of optimal wellbeing of individuals. Hence education programs should be made available for caregivers (Ferry 2005) and there should always be sufficient staff (Garcia 2001) for effective monitoring and care for the elderly.

Base on the above result, the risk factors of dehydration and the prevention of dehydration have been classified as shown in table 6 below.

Table 6: Themes, categories and sub-categories

Themes	Categories	Sub-categories
Risk factors of dehydration	Physiological risk factors	Impaired thirst perception, dysphagia, poor kidney function, nephron loss, reduction in total body water, visual problems, cognitive problems, age over 85, loss in bone mass and muscular mass, decline in the immune system, coma, paralysis, poor hearing, and memory loss.
	Functional risk factor	Mobility disorders, infrequent urination, reduced manual dexterity, somnolence, nocturia, hospitalization, understaffing, refusal of fluids at meal or snack times, need of assistance when eating and drinking, difficulties to communicate fluid needs, lack of attention from caregivers and

		incontinence.
	Environmental risk factors	Heat exhaustion, overexposure to sunlight, isolation and loneliness.
	Disease-related risk factors	Morbidities (kidney failure, heart failure and diabetes), diarrhea, vomiting, fever, neurological disorders (Parkinson's disease and recurrent strokes), hip fractures and knee replacement surgery, dementia, depression, aphasia, polyuria, anorexia and Alzheimer's disease.
	Iatrogenic risk factors	Laxatives, sedatives, diuretics and side effects of medications.
Prevention of dehydration	Water	Encouragement to drink, 1,5ml water/day, and GeriAide lemon supplement if necessary.
	Beverages	Fruit juice, milk, soup, herbal tea, and decaffeinated coffee.

	Food	Vegetables, fruits, cheese, yoghurt, pudding and deserts.
	Supplementary fluids	Supplementary fluids by subcutaneous, IV or enteral routes.
	Clinical practices	Fluid management, fluid charts, special attention on clients on laxatives, sedatives and diuretics, flavored gelatin for swallowing problem and assistance in feeding.
	Practical measures	Drinking in small portions, accessibility to water, and modification of cups for easy handling.
	Education	Well trained and sufficient staff, availability of education programs and information to the elderly and family members about dehydration.

7 DISCUSSION

Caring is an important aspect for elderly in institutions. Without proper care and supervision most elderly are at risk of various health problems like dehydration. This explains why the author decided to do research on the risk factors of dehydration in the elderly which is part of efficient care practice from and how to prevent dehydration. Systematic literature review was a good method in the research as it showed the common practices in caring in institutionalized elderly related to dehydration. The more the frequency in occurrence of strategies to prevent dehydration and its risk factors in different researches, the more the reliability and validity of the results. Health care institutions for the elderly should have adequate and well trained staff for effective nursing practice. This can be seen in Swanson's theory of caring where she emphasizes on nursing skills and the act of caring.

In Swanson's theory of caring her goals are to get more skills in nursing and teach others how to be skillful practitioners. In this context getting more skills is one of the methods to prevent dehydration in the elderly. It entails education and training programs for caregivers to acquire more skills to care for the elderly. It also entails teaching or informing the client and family members on the health risks of dehydration and ways to prevent it.

Swanson highlights that the goal in nursing is the promotion of the wellbeing of others. She uses a pattern to explain the caring process in nursing which is knowing, being with, doing for, enabling and maintaining belief. All these are applicable in nursing homes. This begins with knowing the client's strengths and weaknesses, examining the client and knowing their medical history which guides the caregiver on what services to offer to the client and how to offer the services. Being with goes beyond knowing as it establishes a closer relationship between the caregiver and client during which the caregiver gets a better understanding of the client by being emotionally present and sharing feelings such as joy or sorrow. Doing for are the acts of being helpful, protective or providing comfort to the client in a way that one will perform to him/herself if given the possibility. Enabling is letting the client go through the caring process by growing or healing and this involves support, information, explanations and feedbacks.

These can be done while maintaining belief to enable the client face a future with meaning by generating confidence and hope in the client. When caring is properly done the result is the wellbeing of the client which will help prevent or limit negative outcomes.

Even though Swanson carried out research mostly on child and maternity, her theory is designed to be applicable to nursing practice at a whole. Her theory has been accepted and used in nursing practice and research after her publications in 1991 and 1993. The latest found reference to Swanson's theory is in 2012 whereby in Susan Clabot's article about *Strategies To Help Initiate and Maintain the End-of-Life Discussion with Patients and Family Members* she quotes Swanson's point on the responsibility of nurses in guiding clients "through life transitions and unfamiliar events".

Several other authors have mentioned Swanson's theory as applicable in researches or nursing practice. Andershed B. & Olsson K. (2009) brought out a series of researches about references to Swanson's theory of caring where they stated 120 researches as of 2006. In their work they also stated that Swanson's theory is also applicable to other contexts like Ryden (1998) where he describes how Swanson's theory has relevance for the care of persons with dementia and their families, Andershed & Temestedt (1999) where they describe relatives' involvement in end-of-life in different care cultures and O'Connell (2001) where he describes a nurse-patient engagement in within an acute mental health inpatient unit.

All the applications of Swanson's theory in caring may not be directly connected to dehydration in institutionalized elderly but they are all concerned with caring which is the base for identifying the risks of dehydration in the elderly by care-givers and preventing it.

8 CRITICAL ANALYSIS

In this research the author was interested in articles with practical approach to prevent dehydration in institutionalized elderly. But most of the articles had a medical approach with lot of calculation of fluid intake of the elderly and several clinical tests to diagnose dehydration in the elderly. The author found out that the diagnosis of dehydration in the elderly is still a challenge to the medical field despite the availability of several clinical tests. So many conflicting ideas by previous authors showed that the tests are not reliable due to age-related changes which can be easily mistaken for signs of dehydration. Also some articles found were not accessible so the author was limited to free articles.

Another observation is that Dehydration is seldom covered in books as a full topic on its own. Often it appears as sub topic and falls under nutrition. For this reason the author did not succeed to get sufficient material from books in the library.

9 CONCLUSION

This thesis has been a learning process to the author. So much information was acquired but it had to be narrowed down to the point of focus. Answers to the research questions were easy to get from the selected articles and majority of previous authors share the same ideas about risk factors of dehydration and prevention. It can be concluded that all the risk factors of dehydration in institutionalized elderly are centered on the natural ageing process. This may sound like an unfortunate situation but there are so many easy and available measures to be taken to prevent it if and only if caregivers give them sufficient time to meet up with their needs, assist them in their daily activities and monitor them constantly for any signs of dehydration.

10 RECOMMENDATION FOR FURTHER RESEARCH

Further research should be done on assessment of dehydration in the elderly. Previous researches show that there are really no definite clinical tests for dehydration which are self-reliable. There are conflicting ideas about the ideal signs and symptoms of dehydration in the elderly which are also related to the physiological risk factors of dehydration. Some of the signs and symptoms are considered to be age related changes. This may be a big challenge for future researchers but taking measures to prevent dehydration even in the elderly who are not dehydrated is equally good nursing practice for the well-being of the elderly.

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